

CLAIMS

What is claimed is:

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1. A tubing system for use in a subterranean environment, comprising:

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an upper tubing section having an upper power cable segment therein;

a lower tubing section having a lower power cable segment therein; and

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an intermediate tubing section having an electrical connector that is axially expandable therein, wherein the upper and the lower tubing sections are coupled to generally opposite ends of the intermediate tubing section and the electrical connector is electrically coupled to the upper and lower power cable.

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2. The tubing system as recited in claim 1, wherein  
25 the upper and lower tubing sections comprise coiled tubing.

3. The tubing system as recited in claim 2, wherein the upper tubing section is coupled to the intermediate tubing section by a dimple-on connector.

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4. The tubing system as recited in claim 3, wherein the lower tubing section is coupled to the intermediate tubing section by a dimple-on connector.

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5. The tubing system as recited in claim 2, wherein the electrical connector comprises a sliding contact to permit axial elongation and contraction.

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6. The tubing system as recited in claim 5, wherein the sliding contact comprises a plurality of extensions slidably received in a plurality of corresponding receptacles.

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7. The tubing system as recited in claim 2, wherein the intermediate tubing section and electrical connector may be spooled onto a workover reel.

8. A tubing splice system, comprising:

an intermediate tubing section coupled to a pair  
of adjacent tubing sections by a pair of  
mechanical connectors each having an outside  
diameter that does not substantially exceed  
5 the diameter of each adjacent tubing section;  
and

10 a power cable extending through the pair of tubing  
sections, the power cable being spliced by an  
electrical connector disposed within the  
intermediate tubing section between the pair  
of mechanical connectors.

9. The tubing splice system as recited in claim 8,  
15 wherein the pair of adjacent tubing sections comprise coiled  
tubing.

10. The tubing splice system as recited in claim 8,  
wherein the pair of adjacent tubing sections and the  
20 intermediate tubing section have common diameters.

11. The tubing splice system as recited in claim 8,  
wherein the electrical connector is expandable within the  
intermediate tubing section.

12. The tubing splice system as recited in claim 9,  
wherein each mechanical connector of the pair of mechanical  
connectors has a diameter no greater than the diameter of  
the pair of adjacent tubing sections.

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13. The tubing splice system as recited in claim 12,  
wherein each mechanical connector comprises a dimple-on  
connector.

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14. The tubing splice system as recited in claim 8,  
wherein the electrical connector comprises a sliding contact  
to permit axial elongation and contraction.

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15. The tubing splice system as recited in claim 14,  
further comprising an electric submersible pumping system  
coupled to the power cable and to one of the pair of tubing  
sections.

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16. An electrical connector for connecting segments of  
power cable, comprising:

an outer housing sized to fit within a segment of  
coiled tubing;

a conductive receptacle disposed within the outer housing, the conductive receptacle being electrically coupled to a first power cable segment; and

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a conductive extension sized for slidable receipt in the conductive receptacle, the conductive extension being coupled to a second power cable segment.

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17. The electrical connector as recited in claim 16, wherein the conductive receptacle comprises three conductive receptacles and the conductive extension comprises three conductive extensions.

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18. The electrical connector as recited in claim 17, further comprising a coiled tubing segment positioned around the outer housing.

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19. A method for splicing tubing having an internal power cable for use in providing power to an electric submersible pumping system, comprising:

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coupling an intermediate tubing section between a pair of tubing sections of equal diameter to

the intermediate tubing section via a pair of  
mechanical connectors; and

splicing an internal power cable within the  
intermediate tubing section.

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20. The method as recited in claim 19, wherein  
splicing comprises connecting an upper and a lower segment  
of the power cable to an electrical connector disposed  
between the pair of mechanical connectors.

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21. The method as recited in claim 20, further  
comprising forming the electrical connector as an extensible  
electrical connector.

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22. The method as recited in claim 21, wherein forming  
comprises placing a conductive rod in slidable engagement  
with a corresponding receptacle.

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23. The method as recited in claim 21, wherein forming  
comprises placing three conductive rods in slidable  
engagement with three corresponding receptacles.

24. The method as recited in claim 23, wherein splicing comprises forming an electrical splice above and below the electrical connector.

5 25. The method as recited in claim 20, further comprising connecting an electric submersible pumping system to one of the pair of tubing sections.

10 26. The method as recited in claim 25, further comprising powering the electric submersible pumping system via the internal power cable.

15 27. The method as recited in claim 20, wherein coupling comprises utilizing dimple-on connectors as the pair of mechanical connectors.

28. The method as recited in claim 26, wherein coupling comprises utilizing dimple-on connectors as the pair of mechanical connectors.

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29. A system for splicing tubing having an internal power cable for use in providing power to an electric submersible pumping system, comprising:

means for coupling an intermediate coiled tubing  
section between a pair of coiled tubing  
sections via a pair of mechanical connectors;  
and

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means for splicing an internal power cable within  
the intermediate coiled tubing section.

30. The system as recited in claim 29, wherein the  
10 means for splicing comprises an electrical connector and a  
pair of electrical splices disposed between the pair of  
mechanical connectors.